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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/056,103	01/23/2002	Lydia L. Sohn	PRINP002	9457

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EXAMINER

LAIR, DONALD M

ART UNIT

PAPER NUMBER

2858

DATE MAILED: 09/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/056,103

Applicant(s)

SOHN ET AL.

Examiner

Donald M. Lair

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A

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) 38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-37 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 April 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4 and 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claim 38 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected method of making, there being no allowable generic or linking claim.

Election was made **without** traverse in Paper No. 7.

2. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Objections

3. Claims 1 and 2 are objected to because of the following informalities: the limitation “liquid handling-system” seems like it should be written as “liquid-handling system”. Appropriate correction is required.

4. Claim 3 specifies a range of 0.1 to 50 micrometers for the length of the conduit, which is outside the range of ‘less than 10 micrometers’ originally claimed in Claim 1, from which Claim 3 depends.

Drawings-

5. New corrected drawings are required in this application because Figs. 1, 2, 3, and 5 are overly dark and are not sufficiently clear. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 – 5 and 8 – 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mehta (US-6,426,615) in view of Kricka et al. (US-5,744,366).

8. In regards to Claims 1, 3, 4, 29, and 37, Mehta discloses a device for sensing and characterizing particles by the Coulter principle, the apparatus comprising:

a conduit through which a liquid suspension of particles to be sensed and characterized can be made to pass, wherein the conduit has an effective electrical impedance which is changed with the passage of each particle therethrough and wherein the conduit has a cross-sectional area of less than about $1 \mu\text{m}^2$ (Abstract; Column 1, lines 58 – 61);

a liquid-handling system for causing the liquid suspension of particles to pass through the conduit (Column 1, lines 20 – 33; Column 8, lines 51 – 59); and

a measurement system for sensing the change of electrical impedance in the conduit (Column 1, lines 20 – 33). The Mehta reference fails to disclose the length of the conduit.

9. Kricka et al. disclose a device for characterizing particles wherein the length of the conduit may be from 0.1 to 1,000 μm (Kricka et al.: Column 8, lines 49 – 58).

10. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention disclosed by Mehta by manufacturing the conduit

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with a length between 0.1 and 1,000 μm as taught by Kricka et al., since discovering or selecting optimum length would be within the level of ordinary skill in the art.

11. In regards to Claim 2, Mehta discloses a device comprising the elements described above, wherein the liquid handling system comprises two reservoirs linked by the conduit (Column 1, lines 24 – 27).

12. In regards to Claims 5 and 31, Mehta discloses a device comprising the elements described above, further comprising a microfluidics system for delivering the liquid suspension of particles to the liquid handling system (Figs. 1, 3, 5, and 7; Column 1, lines 20 – 33).

13. In regards to Claims 10 and 36, Mehta discloses a device comprising the elements described above, wherein the measurement system comprises a four-point electrode system (Mehta: Column 11, lines 34 – 50; Claim 1).

14. In regards to Claims 8, 9, 11 – 22, 24 – 28, and 32 – 35, Mehta discloses a device comprising the elements described above, but fails to teach forming the conduit at least in part by an elastomeric material.

15. ~~Kricka teaches forming the conduit at least in part by an elastomeric material (Column 9, lines 17 – 25).~~

16. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention taught by Mehta to use elastomeric material when forming the conduit for the purpose of enabling a transparent embodiment for use with an optical detection system (Column 9, lines 21 – 25).

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17. In regards to Claims 23 and 30, Mehta discloses a device comprising the elements described above, but fails to disclose measuring the particle's residence time in the conduit.

18. Kricka et al. disclose measuring the particle's residence time in the conduit (Column 9, lines 45 – 48; Claim 11).

19. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention disclosed by Mehta to measure the residence time of the particle in the conduit as disclosed by Kricka et al. for the purpose of obtaining more detailed information about the flow rate and behavior of the particles.

20. Claim 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mehta (US-6,426,615) in view of Kricka et al. (US-5,744,366) and in further view of Anderson et al. (US-6,168,948).

21. In regards to Claims 6 and 7, Mehta discloses a device comprising the elements described above, but fails to disclose functionalizing the surface of the conduit / reservoirs to reduce or enhance adsorption of the particles to the surface.

~~22.~~ Anderson et al. disclose a system for genetic analysis wherein the surface of the conduit and reservoirs have been functionalized to reduce or enhance adsorption of the particles to the surface (Column 55, lines 27 and 28).

23. Accordingly, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device disclosed by Mehta in view of Kricka et al. by functionalizing the surface of the conduit / reservoirs as taught by Anderson et al. for the purpose of assisting the sample flowing through the device to reach equilibrium.


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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donald M. Lair whose telephone number is (703) 305-4450. The examiner can normally be reached on Monday - Friday, 8 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on (703) 308-0750. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1436.



Donald M. Lair
Patent Examiner
Art Unit 2858



N. Le
Supervisory Patent Examiner
Technology Center 2800